Adenomyoma associated with high level of CA 125 and CA 19-9: case report

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Summary

Purpose of investigation: A rare case of increasing CA 125 and CA 19-9 levels increasing in a woman with adenomyoma is described. *Methods:* A 39-year-old nullipara woman with CA 125 = 1,796 U/ml and CA 19-9 = 177 U/ml was submitted to abdominal and pelvic MRI, gastric endoscopy, colonoscopy, hysteroscopy, pelvic Doppler and PET scan. None of the exams revealed any apparent malignant disease. *Results:* Six months of gonadotropin releasing hormone agonist treatment reduced CA 125 and CA 19-9 levels. However, after contraceptive pill use the markers were again elevated, and a laparoscopic hysterectomy was performed, and normal CA 125 and CA 19-9 levels were achieved. *Conclusions:* Adenomyoma may be associated with high levels of CA 125 and CA 19-9.

Key words: Adenomyoma; CA19-9 antigen; CA 125 antigen.

Introduction

Plasma-detectable markers have been used in medical practice, particularly in gynecology, since Bast *et al*. established the correlation between CA 125 levels and epithelial ovarian cancer in 1984 [1]. Later, it was observed that other malignant conditions, such as endometrial neoplasia, could elevate levels of these glycoproteins [2]. Additionally, the progression of known benign conditions, such as endometriosis, myomas and adenomyosis may increase levels of CA 19-9, CA 15-3 and especially CA 125 [3].

Currently, these markers have not only assisted in the diagnosis of malignant and benign conditions, but they have also proven useful in evaluating treatments [4].

Although the benign conditions that increase levels of these tumor markers are more common in women of reproductive age, high levels of CA 125 should cause concern, even in young women, regarding the increased possibility of malignant illness [5]. In light of this fact, we report a never-before described case of tumor marker levels being remarkably increased due to adenomyoma.

Patient and Methods

A 39-year-old unmarried and nullipara woman with a discrete dysmenorrhea and menorrhagia underwent comprehensive evaluation exams in August 2007. The pelvic ultrasound (US) scan revealed a uterine volume of 230 cm^3 with several nodules, an endometrial thickness of 1.2 cm and multifollicular ovaries. Three tumor markers were remarkably elevated: CA 125 = 1796 U/ml (normal < 35), CA 19-9 = 177 U/ml (normal < 33) and CA 72-4 = 11.1 U/ml (normal range 5.6-8.2). To investigate the possibility of malignant disease, particularly in the gastrointestinal tract, a gastric endoscopy, colonoscopy and abdominal magnetic resonance imaging (MRI) were carried out; however, the exams revealed no significant findings. Since a whole body PET scan showed an anomalous fluorodeoxyglucose (18F) concentration in the uterus, we enhanced the pelvic investigation with pelvic Doppler US, which confirmed the presence of uterine myomas, but showed no anomalous vascularization in the pelvic organs. Specifically, the pelvic MRI confirmed adenomyosis, since uterine augmentation with heterogeneous myometrium signaling and no nodule description was observed, as well as irregular thickness in the junctional zone, mainly in the fundus and posterior uterine wall. Due to these findings, we investigated the uterine cavity by hysteroscopy, which revealed endometrial polyps in the fundus and right wall of the uterus. Polypectomies were performed using a bipolar resector. Additionally, we obtained samples of the endometrium-myometrium layer junction. A histopathology study confirmed benign polyps and adenomyosis.

Having never been pregnant, the patient decided to undergo clinical treatment with a GnRH agonist, goserelin acetate 10.8 mg, for six months. Three months after the onset of goserelin therapy, we performed pelvic US and tumor marker exams and observed a decrease in uterine size to 144 cm^3, normal ovaries, as well as a significant reduction in tumor marker levels (i.e., CA 125 = 129 U/ml, CA 19-9 = 29.3 U/ml and CA 72-4 = 5.6 U/ml).

Due to hot flashes, decreased libido and insomnia, we prescribed tibolone (1.25 mg) before the second injection of goserelin acetate. After a total of six months of goserelin therapy, both the uterine volume (99 cm^3) and tumor marker levels (CA 125 = 87.8 U/ml and CA 19-9 = 11.9 U/ml) continued to decrease.

The following treatment was based on continuous ethinyl estradiol 20 μg + drospirenon of 3 mg, and after six months the dysmenorrhea and menorrhagia relapsed, while increases in uterine volume (234 cm^3) and CA 125 levels (284.8 U/ml) occurred.

In this context, the patient decided to undergo surgical treatment. Thus, a laparoscopic hysterectomy was performed, and peritoneal fluid and epiploon samples were obtained. Since the ovaries had been normal, and there was no evidence of peritoneal endometriosis, they were not removed. Morphological analysis revealed adenomyoma, and no malignant disease in all any of the samples.

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One month after the surgery, the levels of CA 125 and CA 19-9 returned to normal 23 U/ml and 20 U/ml, respectively.

Discussion

The criteria and features that define adenomyoma remain controversial, and fresh debates are still being carried out. According to Tahlan *et al*. [6], adenomyoma is a benign nodule of endometrial glands surrounded by leiomyomatous smooth muscle. More recently, Takeuchi *et al*. [7] revised Japanese reports and adopted the term juvenile cystic adenomyoma for patients under 30 years of age with cystic lesions in the uterus larger than 1 cm in diameter, and in addition to these clinical criteria severe dysmenorrhea. A uterine histopathology study of this case confirmed those features.

With regard to adenomyoma etiopathogeny is unclear. However, the association between adenomyoma and polyps is relevant [8]. Hysteroscopy confirmed endometrial polyps; nevertheless, pelvic US and MRI had not revealed them. This association is particularly important due to the possibility of atypical polypoid adenomyoma, which might undergo malignant transformation [9].

Another question that should be discussed is: Can adenomyoma increase CA 125 to levels higher than those experienced in endometriosis due to the superior vascularization of the uterus relative to the peritoneum? Alternatively, it could be that since adenomyoma is a histopathological characteristic of the endometrial gland associated with leiomyomatous smooth muscle, and since both tissues can produce and discharge CA 125 to the plasma, levels of the tumor markers would elevate. Unfortunately, thus far, there have been no studies that could validate these suspicions. The reasons for the high levels of the tumor markers in this case remain unclear. Nevertheless, we can conclude that high levels of these tumor markers can be caused by benign conditions, particularly, adenomyoma.

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